

REMARKS

Claims 11, 30, 31 and 61 have been amended. Claims 1-10, 17, 22, 24, 26, 27, 29 and 32-57 are canceled. Claims 23, 25 and 28 are withdrawn. Claims 11-16, 18-21, 30, 31 and 58-71 are currently examined.

The claims are objected to because there is no claim 63. The claims have been renumbered and amended appropriately. For purposes of this response, Applicants will refer to the now correct numbering for claims 63-71.

Claims 11, 12, 14, 15, 18, 20, 21, 30, 31, 58-62, 63, 64 and 66-71 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Merrill, U.S. Patent 7,132,724 (Merrill) in view of Descure, U.S. Patent No. 6,960,799 (Descure) and in further view of Merrill, U.S. Patent Publication No. 2002/0058353 (Merrill 2). This rejection is respectfully traversed.

As amended, independent claim 11 recites an image pixel array in an imaging device, comprising, among other elements, “a first filter having one or more layers of polysilicon or epitaxial silicon over the first photosensor and substrate, the first filter connected to a ground terminal configured to drain charge from the first filter and having a first thickness and absorbing a majority of light at wavelengths shorter than a first wavelength and passing a majority of light at wavelengths longer than the first wavelength.”

Amended claim 30 recites an imager integrated circuit, comprising, among other elements, “first and second sets of pixels, each including a photodiode comprising a doped region of a first conductivity type at a same depth below the substrate’s surface; a first polysilicon filter connected to a ground temrinal configured to drain charge from the first polysilicon filter and having a first thickness over each of the photodiodes in the first set of pixels, said first polysilicon filter absorbing a majority of light at wavelengths shorter than a first wavelength and passing a majority of light at wavelengths longer than the first wavelength.”

Similarly, amended claim 31 recites an imager integrated circuit, comprising, among other elements, “first and second sets of pixels, each including a photodiode comprising a doped region of a first conductivity type at a same depth below the substrate’s surface; a first crystal silicon filter having a first thickness over each of the photodiodes in the first set of pixels, the first crystal silicon filter connected to a ground terminal configured to drain charge from the first crystal silicon filter and absorbing a majority of light at wavelengths shorter than a first wavelength and passing a majority of light at wavelengths longer than the first wavelength.”

As amended, independent claim 61 recites an image pixel array in an imaging device, comprising, among other elements “a first filter comprising one or both of polysilicon or epitaxial silicon over the first photosensor and substrate, the polysilicon or epitaxial silicon of the first filter connected to a ground terminal configured to drain charge from the first filter and having a first thickness and absorbing a majority of light at wavelengths shorter than a first wavelength and passing a majority of light at wavelengths longer than the first wavelength.”

Neither Merrill nor Descure, even when considered in combination, teach or suggest all limitations of independent claims 11, 30, 31 and 61. Merrill relates to a vertical-color-filter detector group. Merrill’s detector group includes a red, a green and a blue detector, vertically stacked over one another. Each detector is a doped region over a doped substrate. Merrill is silent about photosensors or photodiodes laterally adjacent to one another. Descure relates to an array of photodiodes that are divided into three interleaved sub-arrays and is cited for teaching that photosensors are laterally adjacent to one another.

As acknowledged by the Office Action, neither Merrill nor Descure, even when considered in combination, teach or suggest a filter connected to a ground terminal configured to drain charge from the first filter, as recited by claims 11, 30, 31 and 61. Office Action at 4. For this, the Office Action cites Merrill 2.

Merrill 2 relates to a vertical color filter detector group including at least six layers of alternating p and n-type doped regions. Merrill 2 at Abstract. Merrill 2 teaches that the PN junctions between the layers operate as photodiodes and collect the photo generated charge. Merrill

2 at [0014]. Thus, Merrill 2 teaches away from a filter connected to a ground terminal configured to drain charge from the first filter, as recited by claims 11, 30, 31 and 61.

Thus, even when considered in combination, none of Merrill, Descure and Merrill 2 teach or suggest all limitations of independent claims 11, 30, 31 or 61. For at least these reasons, withdrawal of this rejection is respectfully requested.

Claims 13 and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Merrill in view of Descure and in further view of Merrill 2 and Rhodes, U.S. Patent No. 6,815,743 (Rhodes). This rejection is respectfully traversed.

As discussed above, the Merrill, Descure and Merrill 2 combination fails to teach or suggest all limitations of independent claim 11. Rhodes is cited for teaching a photosensor as a photogate, photodiode, photoconductor or other photosensitive elements (Office Action at 13) and does not supplement the deficiencies of Merrill, Descure and Merrill 2. For at least these reasons, withdrawal of this rejection is respectfully requested.

Claims 16 and 65 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Merrill in view of Descure and in further view of Merrill 2 and Randazzo, U.S. Patent No. 6,093,585 (Randazzo). This rejection is respectfully traversed.

As discussed above, the Merrill, Descure and Merrill 2 combination, fails to teach or suggest all limitations of independent claims 11 and 61. Randazzo is cited for teaching that a layer of TEOS can be formed over a polysilicon layer (Office Action at 14) and does not supplement the deficiencies of Merrill, Descure and Merrill 2. For at least these reasons, withdrawal of this rejection is respectfully requested.

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In view of the above, Applicants believes the pending application is in condition for allowance.

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